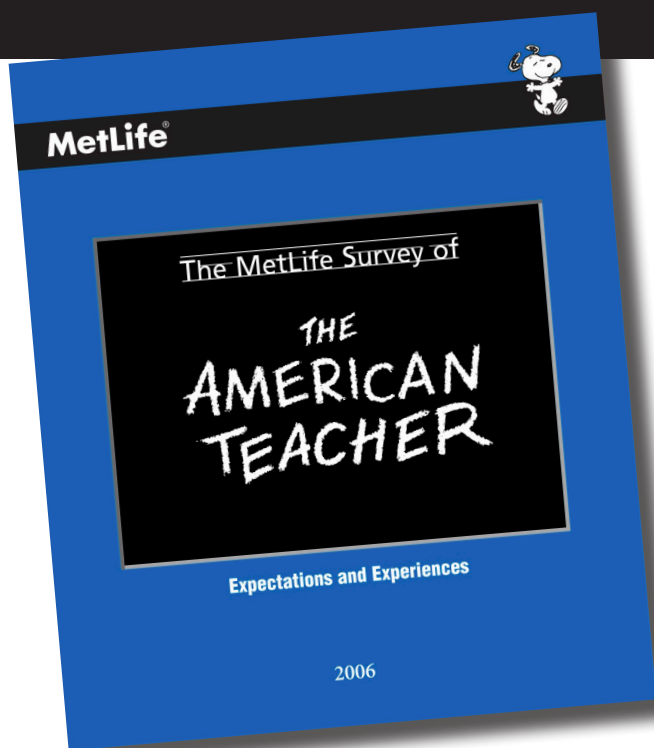


Policy Brief:

# Teacher Shortages

A policy brief exploring important issues raised by the  
*2006 MetLife Survey of the American Teacher: Expectations and Experiences.*



Produced by the Committee for Economic Development  
in partnership with the MetLife Foundation.

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## POLICY BRIEF: TEACHER SHORTAGES

This is the first of two policy briefs exploring important issues raised by the 2006 *MetLife Survey of the American Teacher: Expectations and Experiences*. The Committee for Economic Development has partnered with the MetLife Foundation to promote discussion of the survey's findings.

This policy brief focuses on the belief of the majority of education leaders and principals responding to the survey that a shortage of qualified teachers will be a serious problem in the near future. This brief explores what research says about the existence of teacher shortages. The second policy brief discusses evidence about why teachers leave their classrooms and what might help keep them where they are needed.

### What MetLife survey respondents said about teacher shortages

MetLife conducted interviews with teachers, principals, and the deans/chairpersons of education schools in March 2006. The latter two groups were asked about teacher shortages.

A large majority of deans/chairpersons (81 percent) and principals (64 percent) said that they expected a "very serious" or "somewhat serious" shortage of qualified teachers in their state/school in the near future. Secondary school principals (39 percent) were more apt to predict a "very serious" shortage than elementary school principals (20 percent). Principals in the southeast region of the country (45 percent) were more worried about a "very serious" shortage than principals in the northeast, midwest, and west (19 percent, 21, percent, and 26 percent respectively). Principals in urban/inner city locations, those serving schools with two-thirds or more of their students from low-income families, and those with a third or more of their students from minority groups were more worried about shortages of qualified teachers than their counterparts in other locations and schools.

### Why understanding the nature of teacher shortages is important

Research is increasingly providing evidence to support the common-sense notion that teachers are crucial to the academic achievement of their students. One recent

study<sup>1</sup> confirmed that teacher quality is an important determinant of student achievement in elementary and middle schools. It also found that providing low-income children with high-quality instruction throughout elementary school can substantially close the achievement gap with high-income children, a gap that is one of the biggest challenges educators face.

A shortage of good teachers, therefore, could seriously impede the nation's effort to improve learning for all students. But "shortage" is a vague term that does not indicate the exact nature of the problem or provide useful guidance for policymakers seeking to identify effective remedies. A review of the research on teacher shortages can help sort out these issues.

### What research says about teacher shortages

Both research studies and popular press articles reveal that concern over teacher shortages is nothing new. In the 1950s the movement of "baby boom" children into school and the launching of Sputnik drove worries over finding enough teachers to staff new classrooms and enough math, science, and language teachers to meet newly perceived international threats. More recently, it has been common to hear that rising student enrollments coupled with a large cohort of teachers approaching retirement age and high levels of turnover among younger teachers threaten schools' ability to staff their classrooms. A frequently repeated statistic, first cited in a 1999 report,<sup>2</sup> indicates the nation will need to find "two million new teachers over the next ten years," an apparently daunting task.

The fact that concern over "teacher shortages" appears to be chronic does not mean that it is unwarranted. The challenge for those desiring to address shortages is to understand the extent of staffing difficulties in order to identify appropriate remedies.

A useful place to start is with some numbers that place teachers in the context of the overall labor market.

#### *Teachers and other workers*

In 2006 the U.S. Department of Education estimated that there were 3.2 million public elementary and secondary school teachers.<sup>3</sup> Teaching is a far larger

occupational category than many others with which it is frequently compared. The Bureau of Labor Statistics reports that in 2006 there were 1.1 million accountants and auditors, 556,000 social workers, 548,000 lawyers, 2.4 million registered nurses, and 1.4 million engineers of all types.<sup>4</sup>

The sheer size of the teacher workforce means that even low rates of job turnover will result in many vacancies annually. While turnover rates for, say, all college graduates are difficult to calculate in a meaningful way,<sup>5</sup> it is apparent that if even 5 percent of teachers left the profession each year, schools would still have to hire 180,000 replacements annually. As we shall see below, a 5 percent turnover rate is unrealistically low for teaching and similar jobs. Moreover, the number of teachers who need to be replaced grows when those who change schools or districts (“movers”), and not just those who leave the profession (“leavers”), are taken into account.<sup>6</sup> Most schools are likely to have at least a few vacancies each year; 74 percent of public schools, for example, reported having teaching vacancies for the 2003-04 school year.<sup>7</sup>

Normal job movement in a very large profession, therefore, can create impressions of shortages that may or may not be valid. A more nuanced examination is required.

*The supply of teachers relative to demand*

Ideally, we would compare information on the supply of teachers relative to the demand for them to see if a mismatch exists. Unfortunately, there are no good data at the national or state levels that would allow us to do this.

Part of the difficulty is that teachers are supplied from various sources, including traditional training programs, so called “alternative certification” programs, and the pool of individuals who have been trained and certified to

teach but are not currently working as teachers. Further complicating the picture are certification requirements that vary from state to state; an individual deemed qualified in one state might be labeled unqualified in another. Moreover, understanding teacher supply requires information on when and why teachers leave their jobs and if and when they re-enter teaching. The National Comprehensive Center for Teacher Quality recently reported that many states have data systems in place that allow them to examine parts of the teacher supply and demand process, but currently “[n]o one state was found to be particularly good at tracking teacher supply and demand data specifically.”<sup>8</sup>

National statistics on teaching do not suggest the existence of an overall crisis stemming from a mismatch in the demand for and supply of teachers. From 1996 to 2006, for example, the number of public school students increased by 8 percent, while the number of public school teachers increased by 19 percent.<sup>9</sup> Between 2006 and 2016 the National Center for Education Statistics projects that student enrollments will again increase by 8 percent. The two decades from 1996 to 2016 represent a major shift from the preceding decade, when public school enrollments from 1986 to 1996 increased by 15 percent. The years ahead will be less challenging in terms of addressing rising enrollments than the ‘86-’96 period.

Along with enrollment increases, the “graying” of the teacher labor force has also been frequently cited as a reason to worry about teacher shortages. The proportion of teachers nearing retirement age has indeed been rising (see Table 1).

A spike in teacher retirements resulting from the aging of the labor force, however, will affect different districts and states at different times because of variations in retirement policies. Some jurisdictions report that they have already faced the crest of the retirement wave.<sup>10</sup>

**Table 1: Age distribution of full-time public school teachers**

Age	1993-1994	1999-2000	2003-2004
Under 30	11%	17%	16%
30-39	22%	22%	25%
40-49	42%	31%	25%
50-59	22%	26%	30%
60 and over	4%	3%	4%

SOURCE: National Center for Education Statistics, *The Condition of Education 2007*, NCES 2007-064, Tables 33-1a, 33-1b, and 33-1c.

In general, analysts believe that while retirements will pose challenges for school districts, they do not threaten a crisis in teacher supply. In Florida, which collects data on reasons why teachers leave the teaching work force, fewer than one-quarter of the “leavers” quit because of retirement in 2003-04.<sup>11</sup> Although the state expects retirements to grow in importance in future years, this statistic is consistent with research findings<sup>12</sup> that retirements are not the most important factor in determining whether individuals stay in teaching or leave. A national survey of teachers who left teaching in 2003-04 found that just under a third cited retirement as an important reason for their decision.<sup>13</sup> Attracting more of the graduates who train for but never teach and/or retaining a larger proportion of younger teachers, therefore, are possible ways that districts can offset the effects of any increase in retirement rates.

Another possible sign of a demand/supply mismatch in the teacher labor market might be a diminution in the quality of new hires. Encouragingly, several large urban districts have recently reported that they are finding it easier now than they did in the 1990s to hire teachers with stronger credentials. Reports on Chicago, New York City, and Philadelphia provide evidence that new hires are now more likely to have standard licenses and to have stronger academic backgrounds (as measured by their scores on college admission tests).<sup>14</sup>

#### *Turnover in teaching relative to other professions*

As one recent study noted, “For some years now, and in most discussions of new teacher attrition, there has been a general belief that half of all new teachers flee the profession within five years.”<sup>15</sup> This alarming statistic undoubtedly has fueled the perception that teachers are in short supply. Several new studies indicate, however, that the “50 percent flee” statement is an exaggeration and that teachers do not leave the profession at noticeably higher rates than their counterparts in other careers.

A federal study following a nationally representative sample of college graduates who received their baccalaureate degrees in 1992-93 showed that there is a lot of career switching among recent graduates. Those who chose K-12 teaching were actually among the most stable with respect to their occupations four

years after leaving college. Of ’92-’93 degree recipients who worked full time in April 1994, 82 percent of K-12 teachers were still teaching in April 1997. Graduates working in health occupations were about as likely as teachers to still be in the same occupation (83 percent). For other workers, the percentages still in the same occupation in April 1997 were much lower: for example, engineers, scientists, lab and research assistants (71 percent); editors, writers, and artists (61 percent); other instructors and human services occupations (55 percent); computer and technical occupations (53 percent); and sales and service occupations (45 percent).<sup>16</sup>

A study of all Illinois public school teachers (not just younger ones) over a 30 year period found that the commitment of teachers to their profession has increased over time. In the 1970s, an average of 56 percent of teachers in each entering cohort left teaching jobs in Illinois public schools during their first five years. For more recent cohorts, the percentage of leavers is 40 percent. Importantly, the “return-adjusted” attrition rate is estimated to be 27 percent; the adjustment accounts for the fact that many teachers who leave their jobs for a period return to teaching. Moreover, since the Illinois researchers were unable to track individuals who left jobs in Illinois public schools for jobs in private schools or for schools in other states, even the 27 percent attrition estimate is an overestimate. The Illinois researchers found their results to be consistent with those of previous studies using data from other states.<sup>17</sup>

Finally, a new report directly addresses the question of whether teachers have higher attrition rates than similar professions.<sup>18</sup> The study considers only those individuals who are college graduates and measures turnover by the number who leave their professions (rather than changing jobs within the same profession). It finds that the average annual rate of turnover of teachers (8 percent) is not significantly higher than that of nurses (6 percent), social workers (15 percent), and accountants (8 percent).<sup>\*</sup> Teacher turnover is most different from these other professions among older workers, reflecting the fact that teachers retire significantly earlier. Pension policies that allow teachers to retire comparatively early and in many cases give them a financial incentive to do so likely explain (at least in part) these results.

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<sup>\*</sup> The data source used in this study combines public and private school teachers. Because other evidence suggests that private school teachers have higher turnover than public school teachers, the 8 percent turnover rate reported here may an overstatement of attrition among the latter.



**Table 2: Of schools with vacancies, percent finding it very difficult or impossible to fill vacancies in selected fields, by community type, 2003-04**

Community type	Special education	Mathematics	Biology or life sciences	English as a Second Language
Central city	31%	35%	27%	28%
Urban fringe/ large town	27%	25%	17%	30%
Rural/small town	33%	30%	21%	49%

SOURCE: National Center for Education Statistics, *Schools, Districts, Teachers, Principals, and School Libraries in the United States 2003-04, Schools and Staffing Survey*, NCES 2006-313 Revised, Table 16.

### *No national crisis but local difficulties*

While research does not support the belief that the nation is likely to suffer in the near future from a general shortage of teachers, there is plenty of evidence indicating that specific states, districts, or schools have problems finding the teachers they need.

To begin with, the national student enrollment picture painted above does not reflect trends in individual parts of the country. Over the 2006-2016 decade when the national student population is expected to grow by 8 percent, enrollment in the Midwest is projected to grow by only 2 percent, and enrollment in the Northeast is actually expected to fall by about ½ of 1 percent. Meanwhile, the numbers of students in the South and West are projected to grow by 14 percent and 9 percent, respectively.

Researchers have found that regions already experience “localized problems” in filling teacher vacancies. Using data on the proportion of teachers hired after the beginning of the school year as a proxy indicator of teacher shortages, Murphy et al.<sup>19</sup> showed that in 1999-2000 this “late fill rate” varied by region, with the West and Southeast having the highest rates and the Midwest appearing to have noticeably less difficulty in hiring teachers.

Newly available data from the National Center for Education Statistics also verify that long-standing difficulties in hiring teachers for certain subject areas persist. More than 40 years ago, researchers observed teacher shortages in areas such as mathematics and science where job opportunities (often higher-paying ones) existed outside of education.<sup>20</sup> In 2003-04, only

4 percent of public schools with vacancies in general elementary education reported that they found it very difficult or were not able to fill their positions. By contrast, 29 percent of schools with vacancies in mathematics, 29 percent with vacancies in special education, 27 percent with vacancies in physical sciences, 32 percent with vacancies in English as a Second Language, and 34 percent with vacancies in foreign languages reported it was difficult or impossible to fill these positions.<sup>21</sup>

In addition to regional and subject-matter differences in the ease with which teacher vacancies can be filled, researchers have increasingly provided evidence that some schools and districts have a harder time attracting and keeping teachers than others. A recent research synthesis confirms the persistent problem of higher teacher attrition rates in schools serving minority, low-income, and/or low-performing students.<sup>22</sup> Such schools are disproportionately found in central city and in rural/small town areas.<sup>23</sup> In 2003-04 urban and rural schools reported a harder time filling vacancies in most fields than many suburban schools. Table 2 illustrates the difficulties in some especially hard-to-staff subjects.

When they could not fill vacancies with a fully qualified teacher, both urban and rural schools were more apt to report hiring a less than fully qualified teacher than were suburban schools, and urban schools were noticeably more likely to use long-term or short-term substitutes.

Teachers in schools serving high proportions of academically at-risk students, especially in urban areas, have also been found to be less experienced, less likely to be fully certified, and less likely to have graduated from competitive colleges than teachers in suburban schools.<sup>24</sup>

Researchers have not been able to identify strong links between formal credentials and effective teaching but have shown that teachers with very little experience (1 to 3 years) appear to be less effective and teachers with strong cognitive skills are more effective.

The following data illustrate typical disparities found among schools across the nation in the qualifications of their teaching staffs. The New York State Department of Education reported in 2006 that students in the lowest decile of school districts ranked by poverty levels (i.e., those with the highest poverty rates) had 18 percent of their teachers with fewer than three years of experience, compared to 2 percent in the decile of districts with the lowest poverty levels. High-poverty schools also enrolled much larger percentages of minority students.<sup>25</sup> In California in 2005-06, schools in the highest quartile ranked by their rates of minority enrollments had 8 percent of their teachers who were deemed “underprepared,” while schools in the lowest minority enrollment quartile had only 3 percent of their teachers deemed “underprepared.” Of all the teaching interns in California schools in that year, 44 percent taught in the quartile of schools enrolling the most minority students, while only 7 percent taught in low-minority schools.<sup>26</sup> (Interns are teachers who have been hired because they have demonstrated subject-matter competency and are enrolled in an intern teacher preparation program but who have not yet met the state’s minimum requirements for a preliminary credential.)

Exacerbating the difficulties faced by schools serving at-risk students, teachers tend to leave these schools for less challenging classrooms once they have gained some experience and seniority. Teachers moving from one school or district to another account for about the same amount of turnover as do teachers who leave the profession altogether. In 2004-05, for example, 8.1 percent of public school teachers nationally moved from their school in the prior year, while 8.4 percent left the profession.<sup>27</sup> One recent news report noted that in Guilford County, NC, some principals of high-poverty schools must replace almost their entire teaching staffs every year.<sup>28</sup> In Philadelphia, over two-thirds of the teachers hired in the 1999-2000 school year were no longer working in the district five years later; and only 20 percent were in their original schools.<sup>29</sup>

The serious shortages induced at some schools by high turnover due to the combination of teachers “moving”

and “leaving” are very costly. Turnover is expensive in dollars terms because of the costs of recruiting and initiating new hires into their jobs. But for the at-risk students affected by these shortages, the educational price is even more worrisome. High turnover exposes them continuously to inexperienced and perhaps under-prepared teachers and complicates the task of creating a stable and focused learning environment.

It should be noted that public policy, as well as the individual choices of teachers to change schools or leave the profession, can cause teacher shortages that hurt the most vulnerable students. In 1996, California enacted legislation aimed at reducing class sizes in Kindergarten through third grade in hopes of improving student learning. While evaluators found that the effect of the reform on achievement was inclusive, the effect on the teacher labor market was dramatic. To staff all the new classrooms required by class size reduction, the number of K-3 teachers increased 46 percent by the third year of implementation. The proportion of K-12 teachers who were not fully credentialed went from 1.8 percent before the reform to 12.5 percent in the second year of implementation. Most of the uncredentialed teachers were hired by schools serving the most disadvantaged students.<sup>30</sup>

### *Conclusion*

Based on other available evidence, the “teacher shortage” concern expressed by respondents to the *MetLife Survey* does not reflect a uniform, pervasive nationwide mismatch between the supply of and the demand for teachers. Instead, supply/demand mismatches are more localized in nature and disproportionately affect some schools and districts and some students. This suggests that appropriate responses must address specific needs, such as attracting and retaining teachers in hard-to-staff schools and subjects. It is especially important to address the need for good teaching in schools with many at-risk students. Where retirements are putting unusual strain on districts’ abilities to find enough new teachers, policies aimed at reducing incentives for early retirement, increasing the supply of individuals eligible to be hired, and making teaching more attractive to the large “reserve” pool of teachers (those with appropriate training and credentials who are not currently in the profession) should also be considered.

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